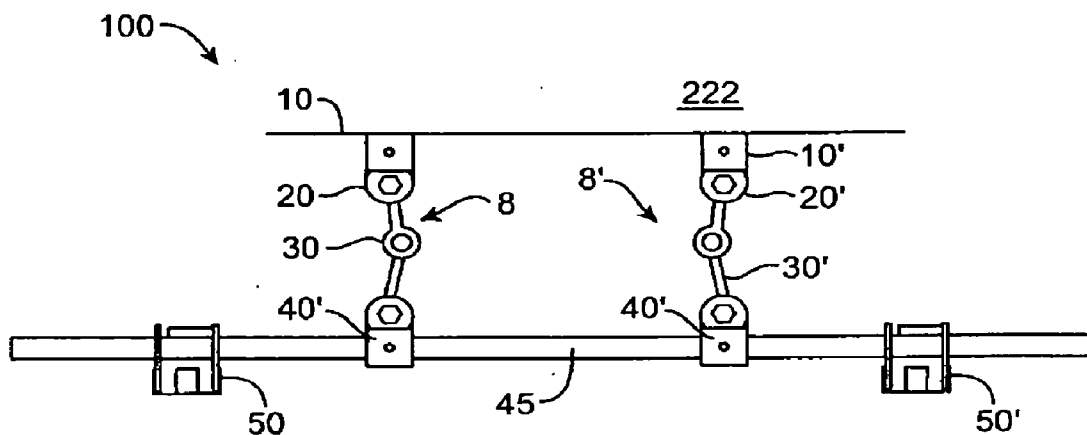




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Saxton, III et al.(10) **Pub. No.: US 2007/0246629 A1**(43) **Pub. Date: Oct. 25, 2007**(54) **ARTICULATING SWIVEL MOUNTING
MECHANISM****Publication Classification**(75) Inventors: **James Swindel Saxton III**, Danville,
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SAN FRANCISCO, CA 94111-3834 (US)(57) **ABSTRACT**

An articulating swivel mounting mechanism for connecting a display to a stationary structure is disclosed. The articulating swivel mounting mechanism includes a first articulating apparatus, and a second articulating apparatus. Each of the first and second articulating apparatuses includes a first rigid structure, and a second rigid structure coupled to the first rigid structure using a hinge. The first and second articulating apparatuses are adapted to articulate independently of each other, and the first and second articulating apparatuses are capable of coupling the stationary structure to the display.

(73) Assignee: **Z-Line Designs**, San Ramon, CA(21) Appl. No.: **11/410,518**(22) Filed: **Apr. 24, 2006**

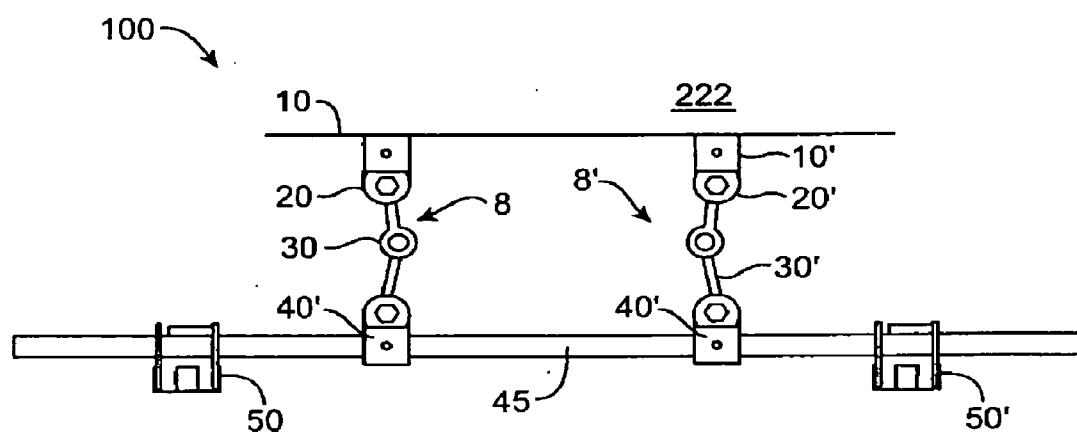


FIG. 1

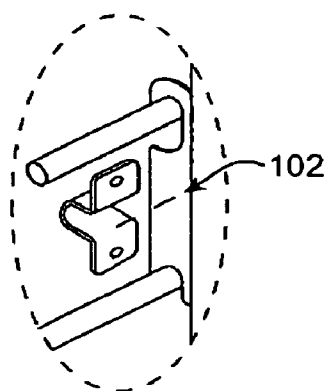


FIG. 2

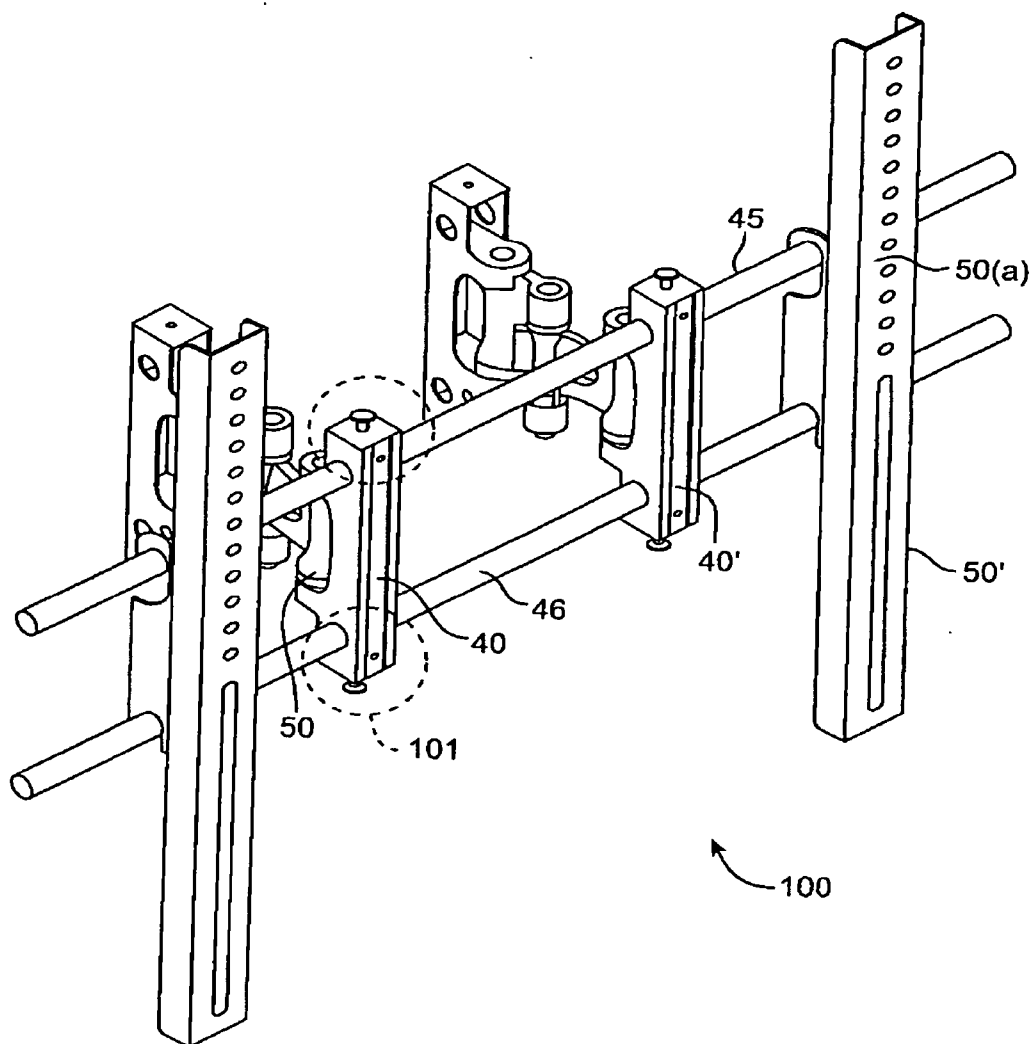


FIG. 3

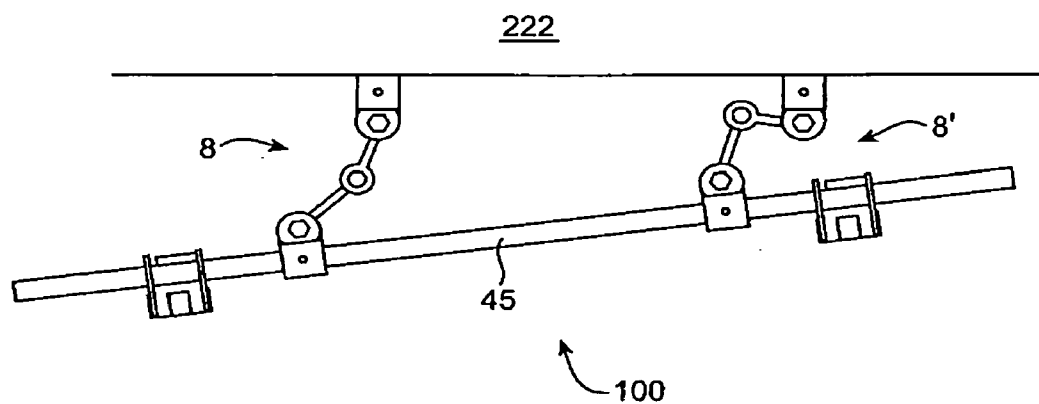


FIG. 4

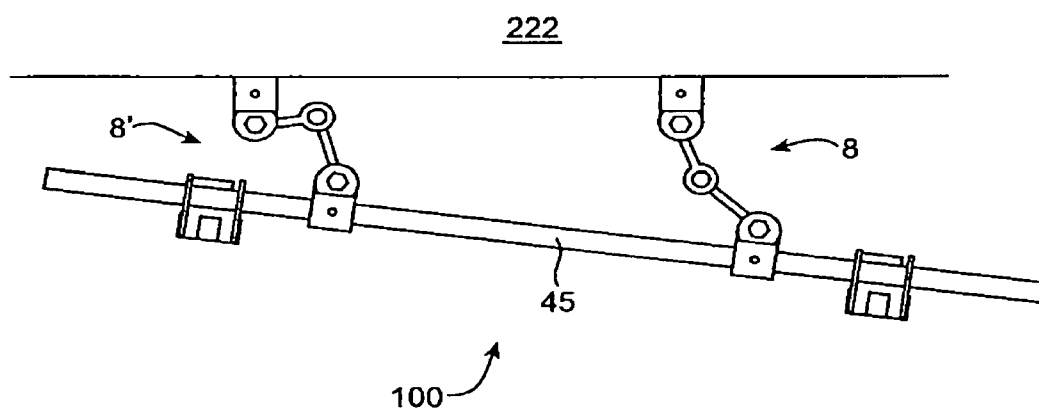
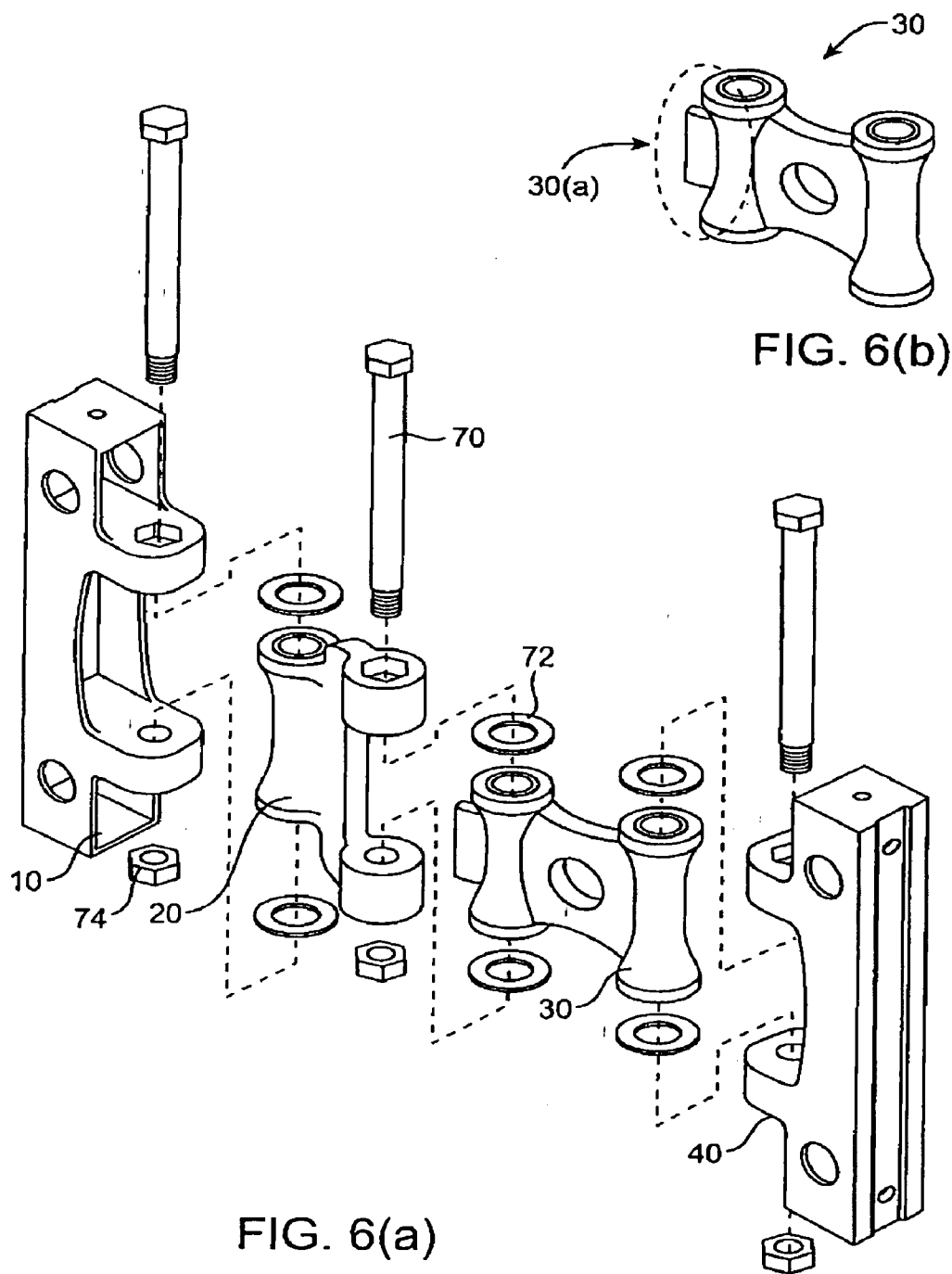


FIG. 5



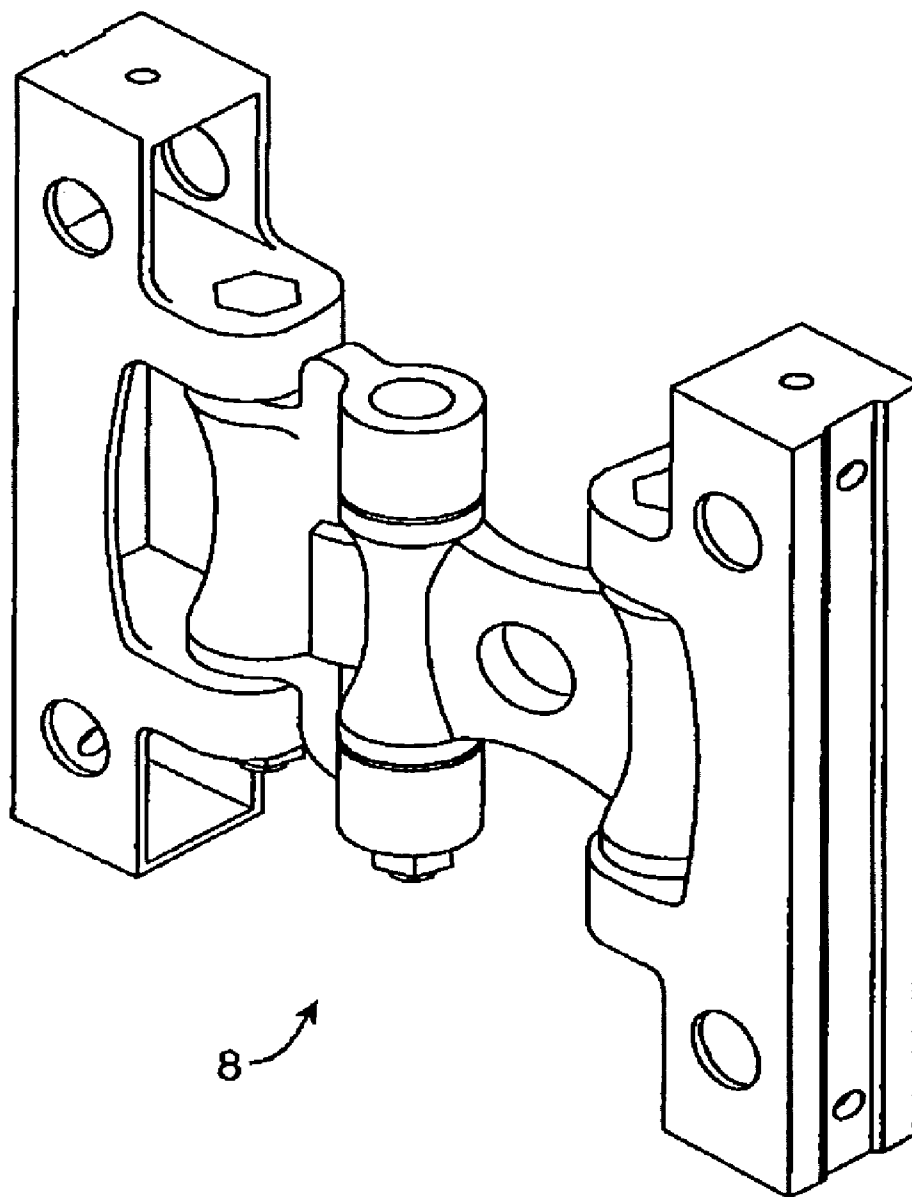


FIG. 7

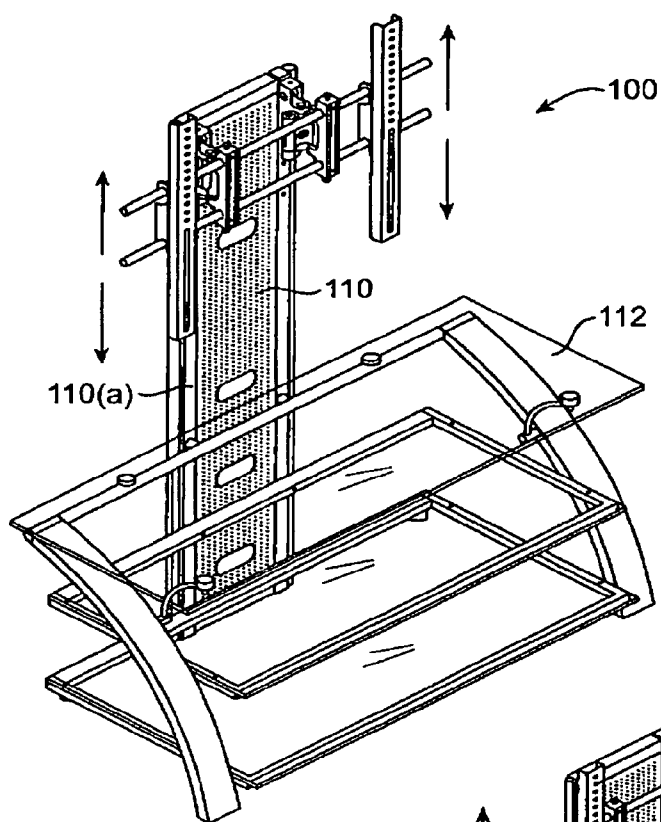


FIG. 8

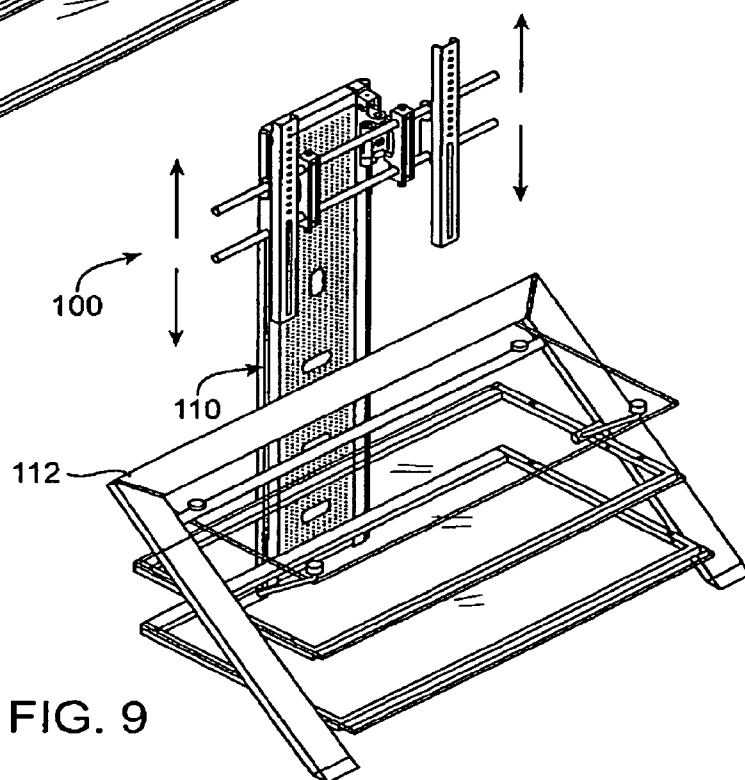
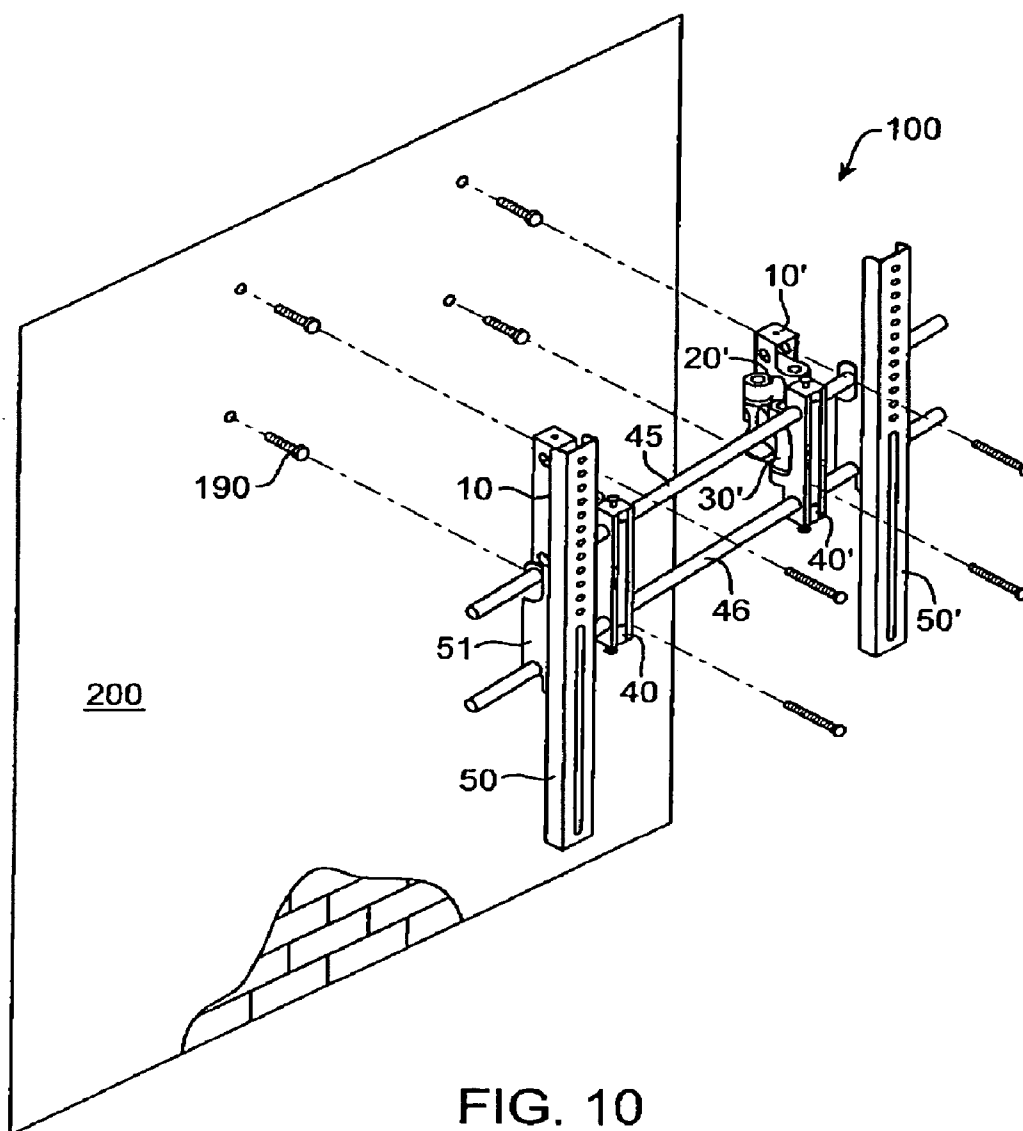


FIG. 9



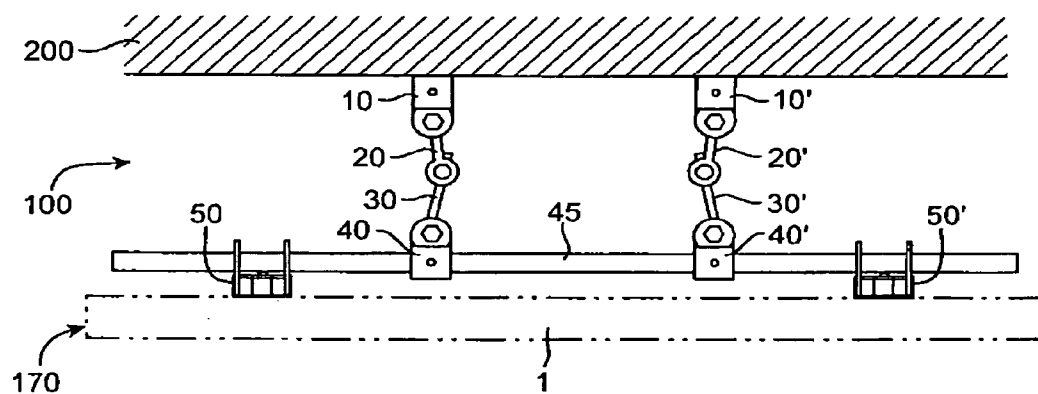


FIG. 11

ARTICULATING SWIVEL MOUNTING MECHANISM

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] Not Applicable

BACKGROUND OF THE INVENTION

[0002] Various flat panel television mounting mechanisms are known. However, these flat panel mounting mechanisms hold a flat panel television in a fixed position. The fixed position usually results in the flat panel display being oriented generally parallel to a flat surface of a stationary structure such as a wall. The functionality of conventional flat panel television mounting systems is limited, since a user cannot alter the viewing angle of the flat panel television. As flat panel televisions and other types of displays become more ubiquitous, it would be desirable to provide for a mounting mechanism that provides the user with the option of easily adjusting the position of the flat panel television, so that the user can view the flat panel television from different desired angles.

[0003] Embodiments of the invention address these and other problems, individually and collectively.

BRIEF SUMMARY OF THE INVENTION

[0004] Embodiments of the invention are directed to articulating swivel mounting mechanisms, systems, and methods of use.

[0005] One embodiment of the invention is directed to an articulating swivel mounting mechanism for connecting a display to a stationary structure, the articulating swivel mounting mechanism comprising: a first articulating apparatus; and a second articulating apparatus, wherein each of the first and second articulating apparatuses includes a first rigid structure, and a second rigid structure coupled to the first rigid structure using a hinge, wherein the first and second articulating apparatuses are adapted to articulate independently of each other, and wherein the first and second articulating apparatuses are capable of coupling the stationary structure to the display.

[0006] Another embodiment of the invention is directed to a system comprising: a stationary structure; and an articulating swivel mounting mechanism comprising a first articulating apparatus, and a second articulating apparatus, wherein each of the first and second articulating apparatuses includes a first rigid structure, and a second rigid structure coupled to the first rigid structure using a hinge, wherein the first and second articulating apparatuses are adapted to articulate independently of each other, and wherein the first and second articulating apparatuses are capable of coupling the stationary structure to the display.

[0007] Methods for using the above-described mechanism and system are also disclosed.

[0008] These and other embodiments of the invention are described in further detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 shows a top plan view of an articulating swivel mounting mechanism according to an embodiment of the invention.

[0010] FIG. 2 shows a perspective view of a bracket.

[0011] FIG. 3 shows a perspective view of the articulating swivel mounting mechanism shown in FIG. 1.

[0012] FIG. 4 shows a top plan view of an articulating swivel mounting mechanism according to an embodiment of the invention where a crossbar of the mounting mechanism is oriented at a first angle.

[0013] FIG. 5 shows a top plan view of an articulating swivel mounting mechanism according to an embodiment of the invention where a crossbar of the mounting mechanism is oriented at a second angle.

[0014] FIGS. 6(a) and 6(b) show perspective views of some components of the first articulating apparatus.

[0015] FIG. 7 shows a perspective view of an articulating apparatus.

[0016] FIGS. 8-9 show perspective views of systems according to embodiments of the invention.

[0017] FIG. 10 shows a perspective view of an articulating swivel mounting mechanism as it would be attached to a wall.

[0018] FIG. 11 shows a top plan view of an articulating swivel mounting mechanism as it is attached to a wall.

DETAILED DESCRIPTION

[0019] One embodiment of the invention is directed to an articulating swivel mounting mechanism for connecting a display to a stationary structure. The articulating swivel mounting mechanism comprises a first articulating apparatus, and a second articulating apparatus. Each of the first and second articulating apparatuses includes a first rigid structure, and a second rigid structure coupled to the first rigid structure using a hinge. The first and second articulating apparatuses are adapted to articulate independently of each other, and the first and second articulating apparatuses are capable of coupling the stationary structure to the display.

[0020] In embodiments of the invention, the stationary structure may be a wall, a column attached to a table, or any other structure that is not to be moved. The stationary structure may include a flat surface.

[0021] The display may be a flat panel television, a computer monitor, an LCD (liquid crystal display), or any other suitable display. The display is preferably flat or substantially two-dimensional.

[0022] FIG. 1 shows a top plan view of an articulating swivel mounting mechanism 100 according to an embodiment of the invention. The mechanism 100 includes a first articulating apparatus 8, and a second articulating apparatus 8'. Each of the first articulating apparatus 8 and the second articulating apparatus 8' includes a stationary structure mounting device 10, 10' for mounting to a stationary structure 222 such as a wall, as well as a support member 40, 40'. The support members 40, 40' are shown as being attached to crossbars 45, 46 (see FIG. 3). However, in other embodiments, the support members 40, 40' could be directly connected to a display (not shown).

[0023] First rigid structures 20, 20' and second rigid structures 30, 30' are between the stationary structure mounting devices 10, 10' and the support members 40, 40'.

The respective first rigid structures **20**, **20'** and second rigid structures **30**, **30'** are coupled together via a hinge. The first articulating apparatus **8** and the second articulating apparatus **8'** can move and swivel independently of each other. Preferably, most or all of the parts shown in FIG. **1** are made of rigid materials such as steel.

[0024] The first articulating apparatus **8** and the second articulating apparatus **8'** are attached to one or more crossbars **45**, **46** which can support mounting brackets **50**, **50'**. As shown in FIGS. **2** and **3**, fixed brackets **102** may secure the mounting brackets **50**, **50'** to the crossbars **45**, **46**. Each mounting bracket **50**, **50'** has holes in it. Tightening screws **101** may secure the crossbars **45**, **46** to the support members **40**, **40'**, and the crossbars **45**, **46** may be oriented generally perpendicular to the mounting brackets **50**, **50'** and the support members **40**, **40'**.

[0025] As shown in FIGS. **1**, **4**, and **5**, the first rigid structures **20**, **20'** and the second rigid structures **30**, **30'** are joined by hinges so that they can swivel independently of each other, thereby allowing a display that is attached to them to be in different positions. As shown in FIG. **1**, the first and second rigid structures **30**, **30'** may be in fully extended positions so that the mounting brackets **50**, **50'**, and the display (not shown) that is attached to the mounting brackets **50**, **50'**, are relatively far away from the stationary structure mounting devices **10**, **10'** and the stationary structure **222**. In another position (not shown), the first and second articulating apparatuses **8**, **8'** can be configured so that any display mounted to the mounting brackets **10**, **10'** would be very close to the surface of the stationary structure **222** to which the stationary structure mounting devices **10**, **10'** are attached. In this position, the first rigid members **20**, **20'** would form acute angles with their respective second rigid members **30**, **30'**, and the vertexes of the formed angles would face outward.

[0026] The first and second articulating apparatuses **8**, **8'** can also be positioned so that any display that is coupled to them forms an angle with a surface of a stationary structure to which the first and second articulating apparatuses **8**, **8'** are attached. For example, as shown in FIG. **4**, the first and second articulating apparatuses **8**, **8'** can be positioned such that the crossbar **45** (and/or any display that is attached to the crossbar **45**) forms a first angle with the surface of the stationary structure **222**. As shown in FIG. **5**, the first and second articulating apparatuses **8**, **8'** can be positioned such that the crossbar **45** (and/or any display that is attached to the crossbar **45**) forms a second angle with the surface of the stationary structure **222**. The first and second angles may oppose each other (i.e., face in opposite directions).

[0027] Embodiments of the invention have a number of advantages. As shown in FIGS. **1**, **4**, and **5**, a user can easily adjust the position of a display that is coupled to the first and second articulating apparatuses **8**, **8'**, to any desired angle or position. This advantageously allows a user to view any attached display from an optimal viewing position when the user is in a predetermined position with respect to the display. For example, using the hinged first and second rigid structures, a display that is attached to them can be positioned so that it is substantially flush with a flat surface of a support structure (e.g., a wall), or spaced away from the flat surface of the support structure. The latter position is desirable if the user wants to access wires or data ports at the back

of a display attached to the rigid structures. Also, using the hinged first and second rigid structures, a user may position the flat display so that it faces to the left or right (as shown in FIGS. **4-5**).

[0028] FIGS. **6(a)** and **6(d)** show some components of the first articulating apparatus **8**. Similar components may be in the second articulating apparatus **8'**.

[0029] FIG. **6(a)** shows an exploded view of a first articulating apparatus **8**. As shown in FIG. **6(a)**, a number of pins **70**, brass washers **72**, and nuts **74** may secure the stationary structure mounting device **10**, the first rigid structure **20**, the second rigid structure **30**, and the support member **40** together. Those of ordinary skill in the art know other ways to secure such components together in a similar fashion. As shown in FIGS. **6(a)**, the first rigid structure **20** may swivel with respect to both the stationary structure mounting device **10** and the second rigid structure **30**. The second rigid structure **20** may swivel with respect to both the first rigid structure **20** and the support member **40**.

[0030] FIG. **6(d)** shows a swivel angle control device **30(a)** that is part of second rigid structure **30**. The swivel angle control device **30(a)** may include a structure that controls and/or limits the swivel angle formed by the first and second rigid structures **20**, **30**.

[0031] FIG. **7** shows a close up, assembled perspective view of the first articulating apparatus **8**, when it is in an assembled state.

[0032] FIGS. **8-9** respectively show perspective views of systems including the above-described swivel mounting mechanism **100** attached to a table **112** with multiple shelves, via a vertically oriented, flat stationary structure **110**. As shown in FIGS. **8-9**, the mechanism **100** can move up and down using rails that are formed in the stationary structure **110**. This allows a user to adjust the position of a display attached to the mechanism in an X, Y or Z direction (three degrees of freedom).

[0033] FIGS. **10** and **11** respectively show a perspective view and a top view of an articulating swivel mounting mechanism **100** as it would be mounted to a wall **200** having a planar surface. In FIG. **10**, a number of screws **190** can be used to secure the articulating swivel mounting mechanism **100** to the wall **200**. Also in FIG. **10**, an attachment mechanism **51** for attaching the mounting bracket **50** to the cross-bars **45**, **46** is also shown. In the Figures, like numerals designate like elements. The other features in FIGS. **10** and **11** are described above and the descriptions need not be repeated here. The operation of the articulating swivel mounting mechanism that is shown in FIGS. **10** and **11**, can operate in substantially the same way as in the embodiments described in FIGS. **1** to **3**.

[0034] FIG. **11** shows a top plan view of the articulating swivel mounting mechanism **100** as it would be attached to a wall **200**. A display **170** is also shown as being attached to the mounting brackets **50**, **50'**.

[0035] The above description is illustrative and is not restrictive. Many variations of the invention will become apparent to those skilled in the art upon review of the disclosure. The scope of the invention should, therefore, be determined not with reference to the above description, but

instead should be determined with reference to the pending claims along with their full scope or equivalents.

[0036] A recitation of “a”, “an” or “the” is intended to mean “one or more” unless specifically indicated to the contrary.

[0037] All patents, patent applications, publications, and descriptions mentioned above are herein incorporated by reference in their entirety for all purposes. None is admitted to be prior art.

What is claimed is:

1. An articulating swivel mounting mechanism for connecting a display to a stationary structure, the articulating swivel mounting mechanism comprising:

a first articulating apparatus; and

a second articulating apparatus,

wherein each of the first and second articulating apparatuses includes a first rigid structure, and a second rigid structure coupled to the first rigid structure using a hinge,

wherein the first and second articulating apparatuses are adapted to articulate independently of each other, and

wherein the first and second articulating apparatuses are capable of coupling the stationary structure to the display.

2. The articulating swivel mounting mechanism of claim 1 wherein the display is a flat panel television, and wherein the stationary structure is a wall or a part of a table structure.

3. The articulating swivel mounting mechanism of claim 1 wherein each of the first and second articulating apparatuses includes a stationary structure mounting device and a support member.

4. The articulating swivel mounting mechanism of claim 1 wherein the display is a flat display and wherein the stationary structure has a flat surface, and wherein the mounting mechanism is capable of allowing a user to position the flat display parallel and away from the stationary structure, parallel and close to the stationary structure, and at two opposing angles with respect to the flat surface.

5. The articulating swivel mounting mechanism of claim 1 wherein the first and second articulating apparatuses each further includes a swivel angle control device which can control the degree of swivel.

6. A method for using the articulating swivel mounting mechanism of claim 1, the method comprising:

attaching the first and second articulating apparatuses to the first and second articulating apparatuses to the display; and

adjusting the position of the display using the first and second articulating apparatuses.

7. The method of claim 6 wherein the display is a flat panel television.

8. The method of claim 6 wherein the display is a flat display and wherein the stationary structure has a flat surface, and wherein the mounting mechanism is capable of allowing a user to position the flat display parallel and away from the stationary structure, parallel and close to the stationary structure, and at two opposing angles with respect to the flat surface.

9. A system comprising:

a stationary structure; and

an articulating swivel mounting mechanism comprising a first articulating apparatus, and a second articulating apparatus, wherein each of the first and second articulating apparatuses includes a first rigid structure, and a second rigid structure coupled to the first rigid structure using a hinge, wherein the first and second articulating apparatuses are adapted to articulate independently of each other, and wherein the first and second articulating apparatuses are capable of coupling the stationary structure to the display.

10. The system of claim 9 further comprising a table wherein the stationary structure is attached to the table.

11. The system of claim 10 further comprising the display.

12. The system of claim 10 wherein each of the first and second articulating apparatuses include a stationary structure mounting device and a support member.

13. The system of claim 9 wherein the display is a flat panel display and wherein the stationary structure has a flat surface, and wherein the mounting mechanism is capable of allowing a user to position the flat display parallel and away from the stationary structure, parallel and close to the stationary structure, and at two opposing angles with respect to the flat surface.

14. The system of claim 9 wherein the stationary structure is a wall.

15. The system of claim 9 wherein the stationary structure is attached to a table, the table including a plurality of shelves.

16. The system of claim 15 wherein the display is a flat panel television.

* * * * *